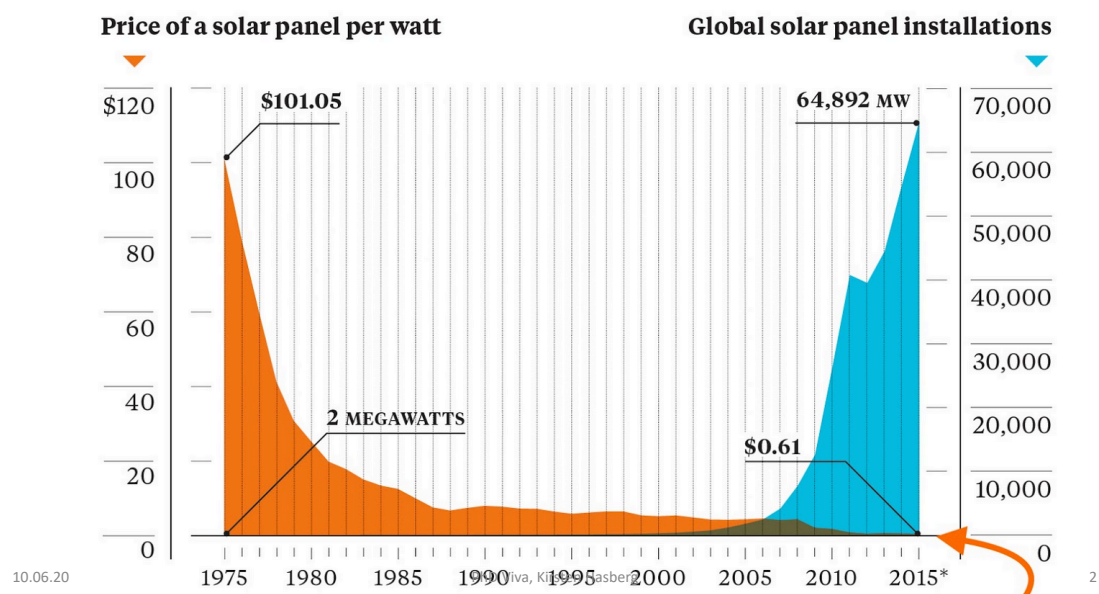


PhD viva: Understanding carbon lock-in of energy and information systems through power/ignorance

Kirsten Sophie Hasberg
PhD candidate, Aalborg University
Zoom, June 10, 2020

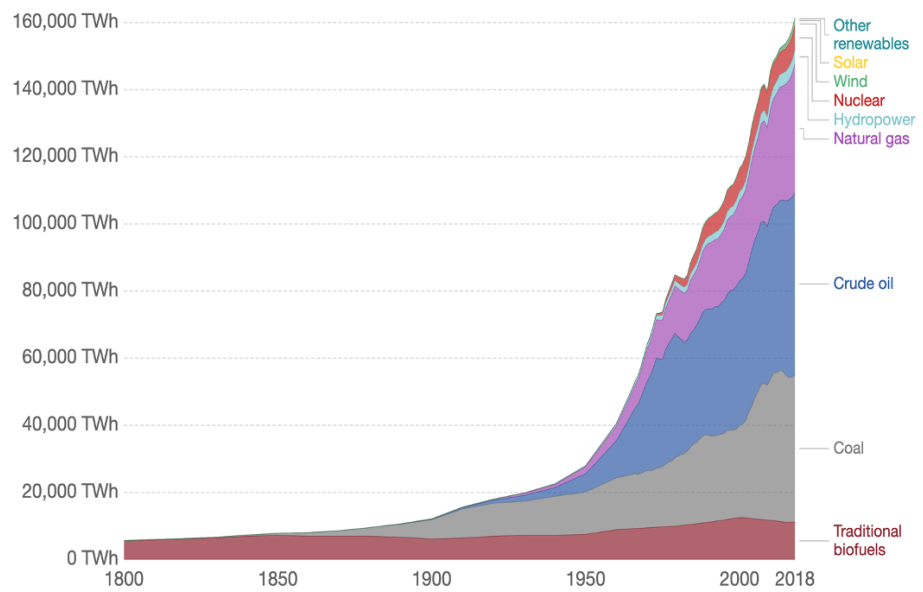
1

The energy transition: A success story ...



2

... or a
story of
carbon
lock-in?



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3

Why are (most of us) seemingly ignoring carbon lock-in?



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4



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Research questions

*Overarching research question:
How does power and ignorance
shape carbon lock-in?*

Theorization

*Research question B:
What kinds of practices of
'unseeing' – allow blockchain-in-
energy thought collectives to
know what not to know, thus
cementing existing infopower and
energopower structures?*

Article B (Technikgeschichte)

*Research question A:
How do fact-making calculative
devices and the Supergrid
thought collective around Viking
Link sustain energopower in
times of energy transition?*

Article A (Oeconomia)

Case studies

Foundation article (Le Foucauldien)

Review of key
concepts

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Overview of the dissertation

Three sections:

A: Reflections on research organization

B: Philosophical reflections

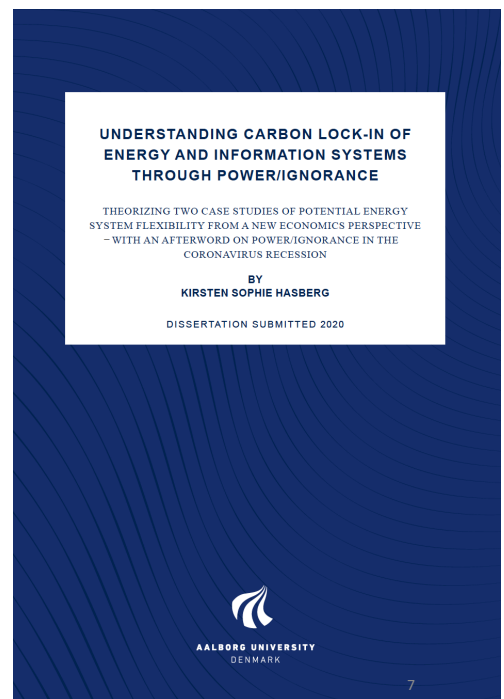
C: Escaping lock-in by transforming power/ignorance

+

Three articles (Technikgeschichte, Oeconomia and Le Foucaldien)

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Agenda

A. What is Power/ignorance?

B. Two case studies: Blockchain and Viking Link

C. Theoretical contribution: Heideggerian philosophy of technology

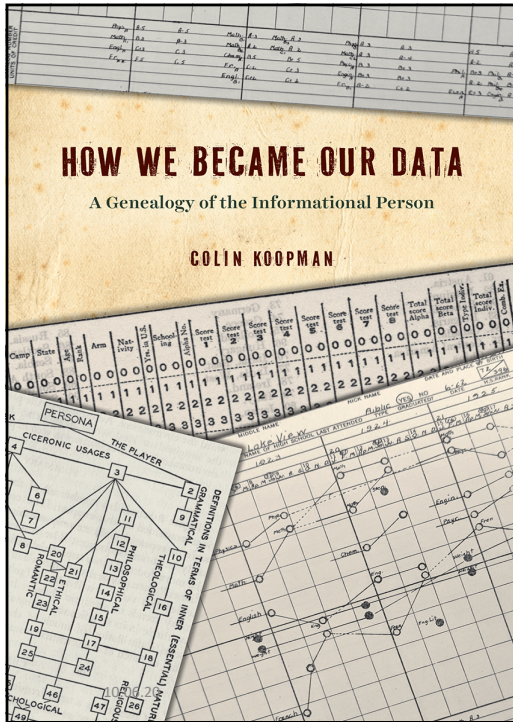
D. So what?

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Infrastructured power, 1:

Based on an understanding of infrastructure as "stored power" (Förster 2020)

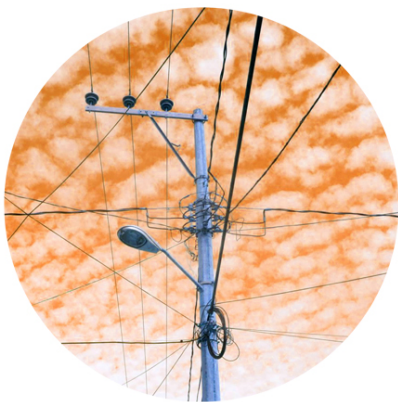
Infopower (Koopman 2019) acts by fastening information into infrastructures which path-dependently reproduce whatever injustices were molded into the earliest data sheets. [...]

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Energopolitics



Infrastructured power, 2:

[...] Energopower could be understood as the fastening of energy into infrastructures (which are, today, fossil infrastructures), path-dependently reproducing the problematics of the fossil era. (Hasberg 2019)

Wind and Power in the Anthropocene **Dominic Boyer**
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10

10

The problem of agency: Infrastructured power as Heidegger's "Das Man"

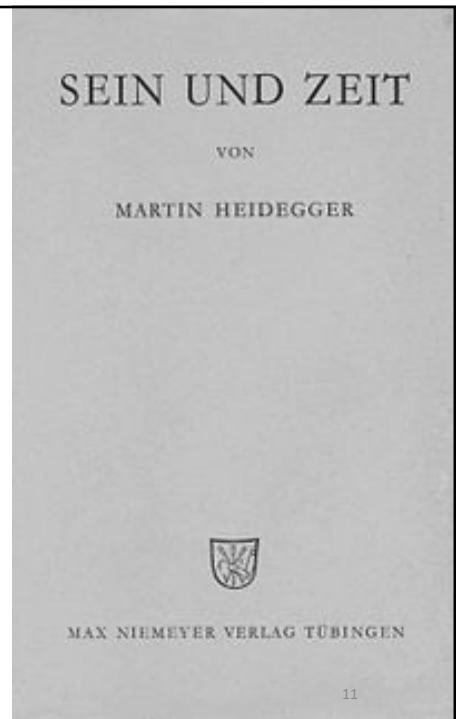
"[...] It "was" always [das Man] who did it, and yet it can be said that it has been "no one". [...]the agency through which most things come about is one of which we must say that "it was no one". [...]

(Heidegger 1962: 164)

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From Ludwik Fleck's trinity of the scientific fact:

- Subject (the individual knower)
- Object (reality, that which is to be known)
- Thought collective



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.... to my conceptualization of power/ignorance:

- A neologism derived from the Foucauldian term power/knowledge
- Both power and ignorance is infrastructured, exhibiting path-dependency.

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Power/ignorance: No, it is not sufficient to speak truth to power.



The Emperor's New Clothes:

"The Emperor shivered, for he suspected they were right. But he thought, "This procession has got to go on." So he walked more proudly than ever, as his noblemen held high the train that wasn't there at all."

(Hans Christian Andersen 1949 [1837])

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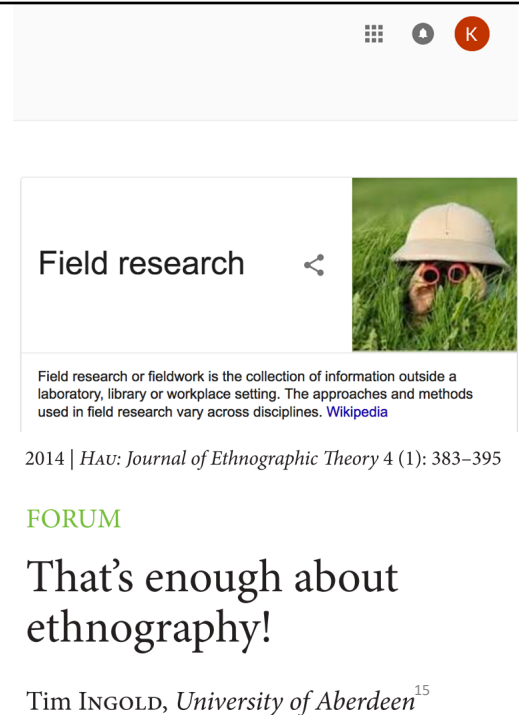
Method: "Retrospective insider research"

- self-ethnographic (1)
- serendipitous (2)
- retrospective (and therefore implicitly covert) (3)

Or, with the words of Ingold (2014), ethnography is the *retrospective* practice of converting learnings gained through our *committed* relationships with others.

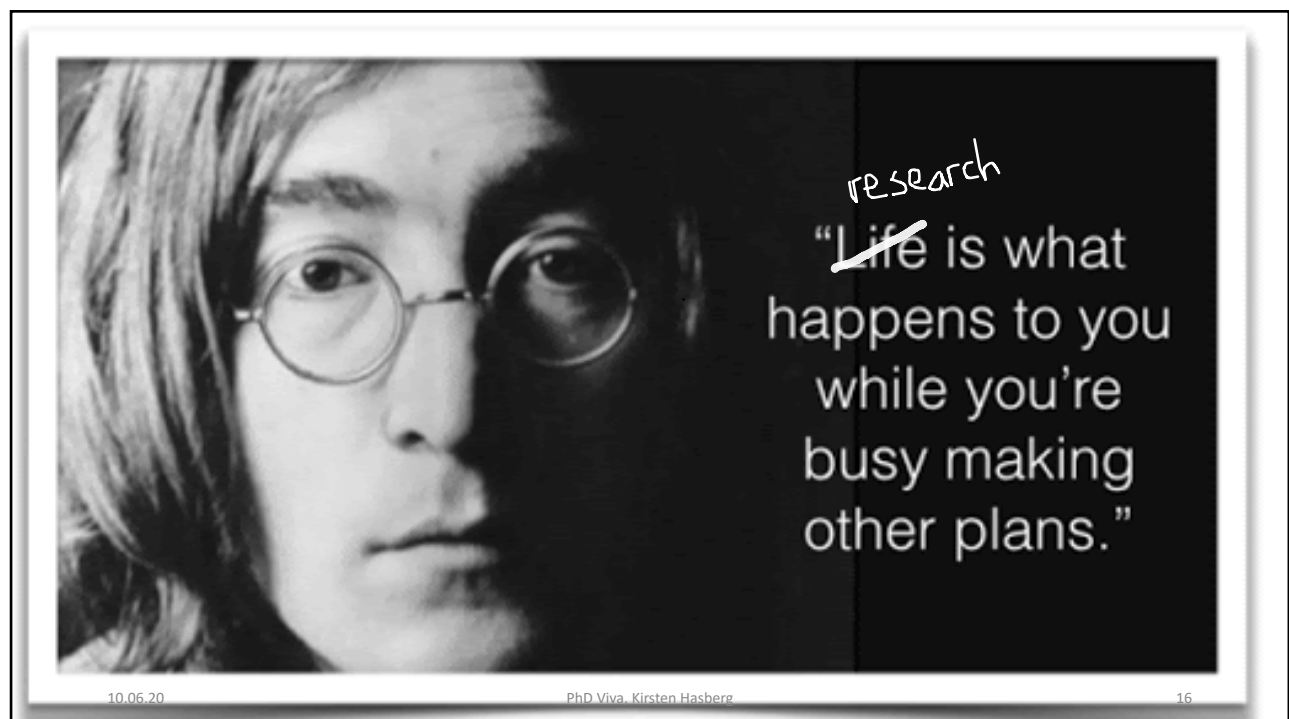
10.06.20

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The screenshot shows a social media interface. At the top right are icons for a grid, a bell, and a profile picture with the letter 'K'. Below is a post titled "Field research" with a share icon. The post features a photo of a person wearing a hat and sunglasses, partially obscured by tall grass. The text of the post reads: "Field research or fieldwork is the collection of information outside a laboratory, library or workplace setting. The approaches and methods used in field research vary across disciplines. [Wikipedia](#)". Below the post is a citation: "2014 | HAU: Journal of Ethnographic Theory 4 (1): 383–395". Further down is a green heading "FORUM" followed by the text "That's enough about ethnography!". At the bottom right is the name "Tim INGOLD, University of Aberdeen" with a superscript "15".

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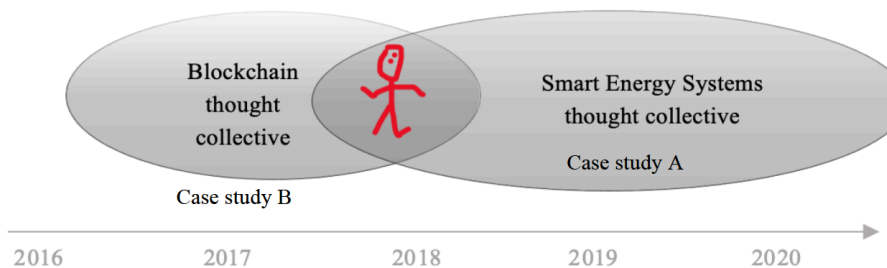


The image is a black and white portrait of a person with long, wavy hair and round glasses. Overlaid on the right side of the image is the text: "research" (written in a cursive, handwritten style), followed by "Life is what happens to you while you're busy making other plans." (in a clean, sans-serif font). The word "Life" has a diagonal line through it. At the bottom left of the image is the date "10.06.20". At the bottom center is the text "PhD Viva, Kirsten Hasberg". At the bottom right is the number "16".

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Inside what? Within thought collectives

Figure 4-1 Being an insider in two different thought collectives over the PhD period



Note: The red figure represents the author. Source: Own illustration

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Two case studies: Viking Link (A) and Blockchain (B)

What do they have in common?

- two different approaches to energy system flexibility
- two different types of *infrastructure* (energy vs. information)
- two examples of *not* getting what "we" want (autoimmunity instead of change processes)

And, first and foremost:

- two different struggles over (de)centralization

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Case B: Blockchain in energy

Hasberg, Kirsten Sophie. 2021. Power struggles on the blockchain: From de- to recentralization. In Christian Götter (ed.), *Technologies as Anchors for Societal Conflicts* [special issue]. *Technikgeschichte* [in preparation].

10.06.20

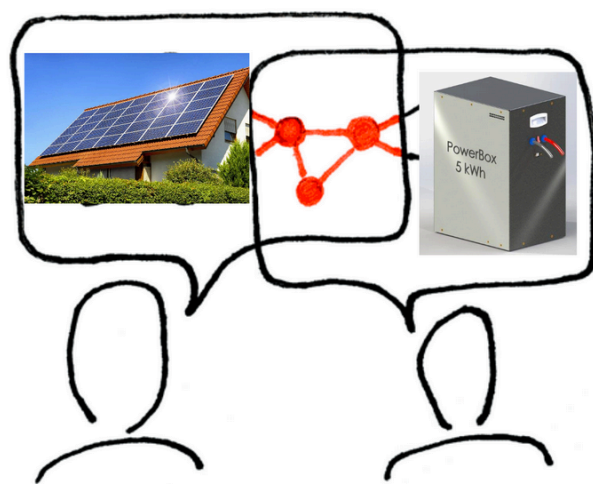
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The socio-technical imaginary of a "governance-less" technology

Initial vision of the blockchain-in-energy thought collectives:
Allowing prosumers to trade electricity locally, without a central market intermediary (other than the grid infrastructure)

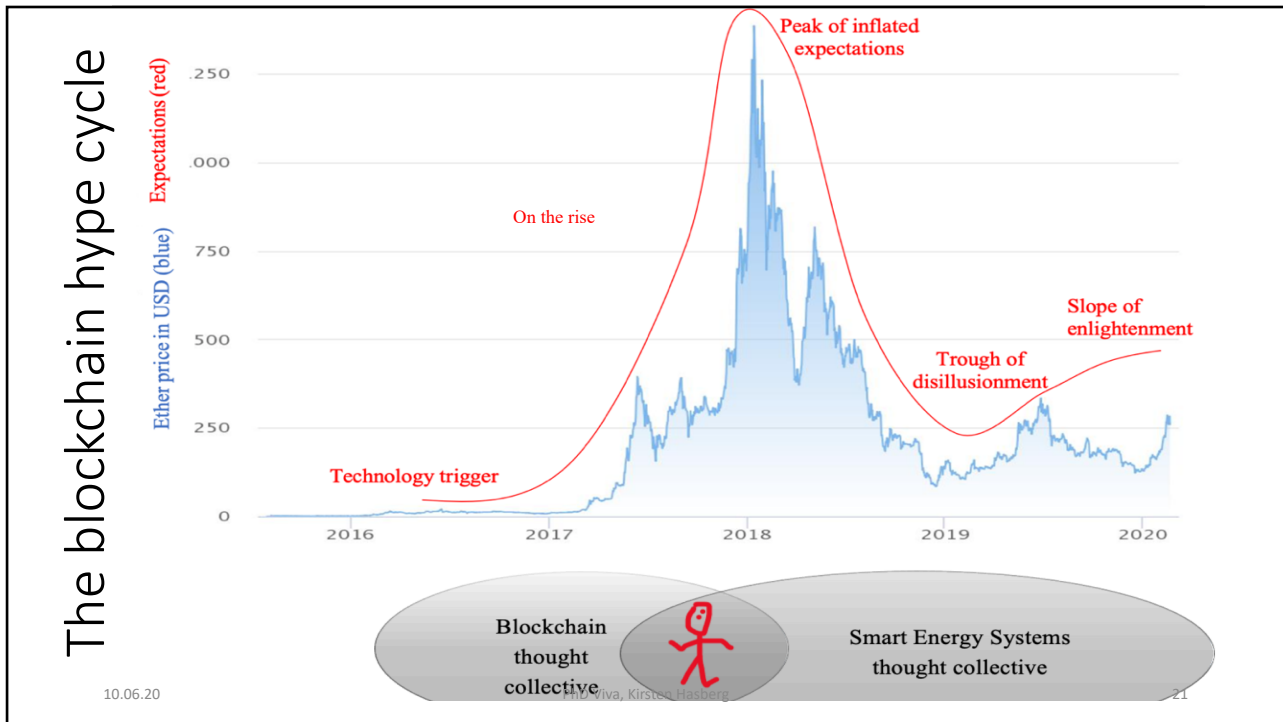


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From socio-technical imaginaries mocking centralization

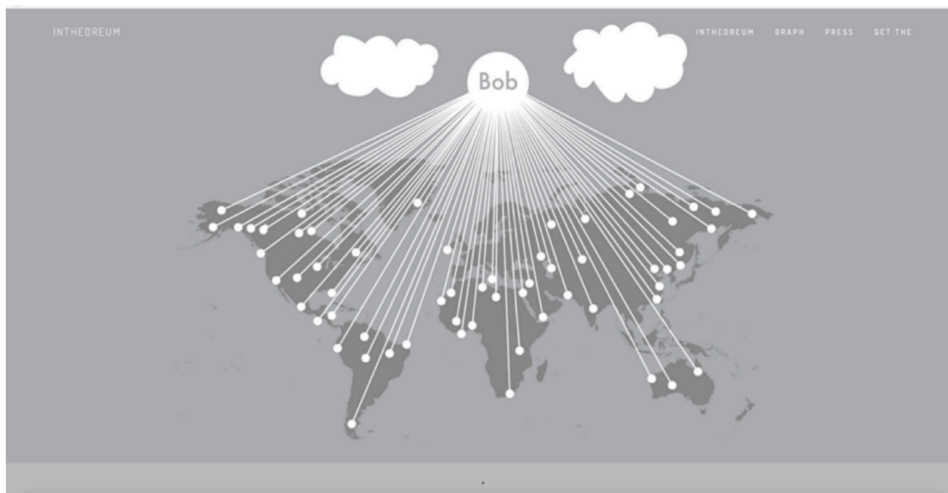


Figure 2 Intheorem.org. Source: (Wayback Machine 2016)

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...to recentralization through energy consortium chains

"Still in spring 2016, [name] of [blockchain startup] invited me to come by [their] office in [city name], decorated with golden wallpaper full of post it notes on top. [Utility name] was obviously mentioned on many of them, and it was clear that I was seeing confidential information."

Later in 2016, with the same startup, paraphrasing an office manager:
"They are all in [city name], negotiating with [utility name]."

Retrospective field Notes, February 2018

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...and information infrastructure centralization

[blockchain project name] increasingly ran into problems of "actually using blockchain." [...] I'm quite convinced [...] that the data infrastructure behind it is more like a centralized database rather than a blockchain. [...] In that way, [its] fate is similar to the fate of so many other blockchain projects.

From retrospective field notes, December

2018
BLOCKCHAIN ETHEREUM
Ethereum Co-Founder Vitalik: IBM Blockchain Is "Missing The Point"

NICK CHONG | NOVEMBER 27, 2018 | 11:00 AM

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... ignoring words
of warning



vitalik.eth
@VitalikButerin

All crypto communities, ethereum included, should heed these words of warning. Need to differentiate between getting hundreds of billions of dollars of digital paper wealth sloshing around and actually achieving something meaningful for society.

Amir Taaki @Narodism · Dec 26, 2017

Bitcoin is turning into a failed project. The seeds of its destruction among the debris of a community blinded by numerical price increases, and imminent divine reclamation. One day you will all understand my words but it will be too late, the ship would have sailed.

12:59 PM · Dec 27, 2017 · [Twitter Web Client](#)

3.2K Retweets 8.2K Likes



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Sociotechnical imaginaries
remain in place even when
failures contradict them

Disassembling the Trust Machine

Three cuts on the political matter of blockchain

Jaya Klara Brekke

"This drawing of a boundary between a coherent and perfect [information infrastructure] core and mushy, imperfect humans allows for the integrity of the idealised system to remain intact while, for all practical purposes, trusted intermediaries proliferate [...]" (Brekke 2019)

PhD Thesis

Geography Department

Durham University

2019

10.06.20

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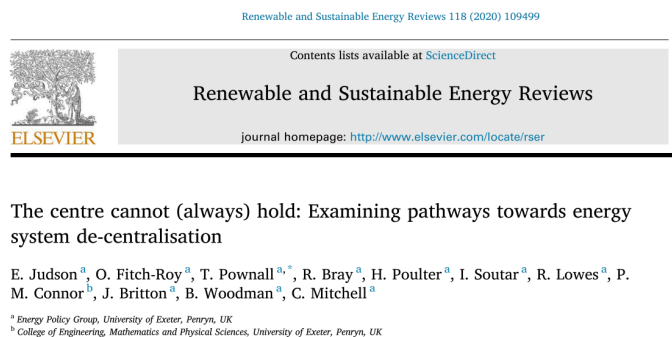
Decentralization acts as a sociotechnical imaginary

"We argue that decentralisation is often symbolic, as much a narrative shorthand for the direction in which the energy system is (or should) be heading and the values that it ought to embody, as it is a descriptive or analytical device." (Judson et. al 2020: 2)

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... that turns into a veil of ignorance

"Promises of decentralization of socio-economic structures solely through technology thus remain a discursively well-honed **delusion**, one that in the worst case **obscures** contradictory empirical developments (such as oligopolistic configurations and dynamics of recentralization in the digital economy)." (Schrape 2019: 20)

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Technology and the Promise of Decentralization: Origins, Development, Patterns of Arguments

Schrape, Jan-Felix

Veröffentlichungsversion / Published Version
Arbeitspapier / working paper

Empfohlene Zitierung / Suggested Citation:

Schrape, J.-F. (2019). *Technology and the Promise of Decentralization: Origins, Development, Patterns of Arguments*. (Research contributions to organizational sociology and innovation studies / Stuttgarter Beiträge zur Organisations- und Innovationssoziologie : SOI discussion paper, 2019-1). Stuttgart: Universität Stuttgart, Fak. 10 Wirtschafts- und Sozialwissenschaften, Institut für Sozialwissenschaften Abt. VI Organisations- und Innovationssoziologie. <https://nbn-resolving.org/urn:nbn:de:0168-ssaoar-61758-6>

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Conclusions on case B:

- Sociotechnical imaginaries of technological decentralization act as veils of ignorance, making thought collectives blind to questions of power
- The struggles over de- versus recentralization on the blockchain function as surrogate conflicts over broader societal questions regarding the distribution of power and wealth.
- By moving the scene of discussion from the societal to the technological level, blockchain technology contributes to depoliticizing the societal debate
- Thus, a new technology may paradoxically end up contributing to what early user communities advocated against.

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Case A: Viking Link (from a Danish perspective)

Hasberg, Kirsten Sophie. 2020a. Constructing the interconnector Viking Link: How calculative devices and thought collectives constitute and reinforce energopower. In Guido Erreygers, Marion Gaspard, & Antoine Missemmer (eds.), *Facts in Environmental and Energy Economics: Models and Practices, Past and Present* [special issue]. *Æconomia. History, Methodology, Philosophy*. [resubmitted]

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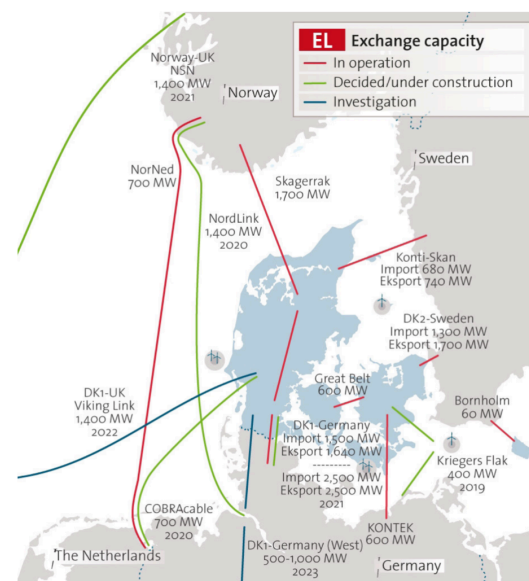


Figure 1. Danish interconnectors. The map omits links under consideration: DKE - PL1, DKE-DE (Kontek2) as well as the North Sea Wind Power Hub. Source: Energinet and Energistyrelsen (2018), Baltic InteGrid (2019) and ENTSO-E (2019)

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Viking Link from a British perspective

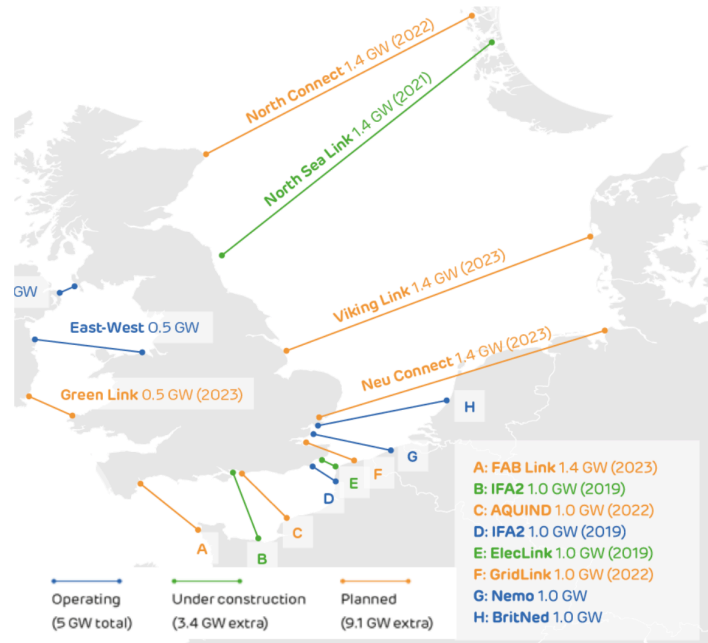


Figure 2. Interconnector development seen from a British perspective. Source: Staffell et al. (2019), selection

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TAGESSPIEGEL ENERGIE & KLIMA

BACKGROUND

17.05.2018 - Standpunkt von Kirsten Hasberg und Kollegen, Universität Aalborg

Ein Kabel für deutschen Kohlestrom

[A cable for German coal power]



Lars Chr. Lilleholt
@larsclilleholt

Vi bygger verdens længste elkabel "Viking Link" mellem Danmark og Storbritannien 🇩🇰🇬🇧 Grøn strøm kan blive den nye bacon med stor eksportværdi til gavn for forsyningsikkerhed, grøn omstilling og samfundsøkonomi #dkpol #dkgreen

9:54 vorm. · 30. Okt. 2017 · Twitter for iPhone

A: energi og klima

Forskere: Viking Link er en risikofyldt investering, der bør udskydes

KRONIK 9. maj 2018 kl. 5:00 | 1 kommentar

[Scholars: Viking Link is a risky investment that should be deferred]

Af Brian Vad Mathiesen, Henrik Lund og Søren Djørup

Hhv. professorer og adjunkt ved Aalborg Universitet

[We are constructing the world's longest electricity cable "Viking Link" between Denmark and Great Britain. Green electricity could become the new bacon with large export value, benefitting security of supply, the green transition and the economy]

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Interconnectors: Not a question of simplistic "all good or all bad"

From within the Smart Energy Systems thought collective: Arguing for a subsidiarity principle in interconnector planning

10.06.20



Energy Strategy Reviews
journal homepage: www.ees.elsevier.com/esr

ANALYSIS

Local ownership, smart energy systems and better wind power economy
Frede Hvelplund*, Bernd Möller, Karl Spertling
Department of Development and Planning, Aalborg University, Vestre Havnepromenade 9 3rd, 9000 Aalborg, Denmark


Energy 124 (2017) 492–501



Contents lists available at ScienceDirect

Energy
journal homepage: www.elsevier.com/locate/energy

Cross-border versus cross-sector interconnectivity in renewable energy systems
Jakob Zinck Thellufsen*, Henrik Lund
Aalborg University, Department of Planning and Development, Skibbrogade 3, 9000 Aalborg, Denmark



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Infrastructured ignorance reinterprets criticism as supporting arguments...



Pkt. 1 Åbent samråd i Klima-, Energi- og Forsyningsudvalget om nye beregningsforudsætninger for Viking Link-projektet

Pkt. 1 Åbent samråd i Klima-, Energi- og Forsyningsudvalget om nye beregningsforudsætninger for Viking Link-projektet

Søren Egge Rasmussen
Enhedslisten

Pkt. 1 Åbent samråd i Klima-, Energi- og Forsyningsudvalget om nye beregningsforudsætninger for Viking Link-projektet

Pkt. 1 Åbent samråd i Klima-, Energi- og Forsyningsudvalget om nye beregningsforudsætninger for Viking Link-projektet

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Søren Egge Rasmussen (Danish Red-Green party [Enhedslisten]): "I noticed that the minister said that Viking Link has a green profile from 2030. So from 2023 to 2030 this project must apparently have a black profile, without any CO2-reduction, is that correctly understood?"

Ida Auken (chair of energy committee): "Now, the minister:"

The Minister Dan Jørgensen [Social Democrats]: "Mr. Søren Egge asked the question [regarding the "black profile", that is, the increase of coal power use in Germany from 2023-2030 due to Viking Link, as modelled by the Danish Energy authority] like 'there I got the Minister' [...] But I think I said it quite clearly in my speech. *It is evident*: When you expand the grid, it can of course also be used by the electricity that is not green right now"

(Folketinget 2019: line 284ff, my italics)

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... as known from other infrastructure megaprojects

Kronik: Femern-tunnel igangsat på oppustede prognoser og usikker økonomi

[Op-ed: Femern-tunnel initiation based on inflated prognoses and uncertainty]



(Illustration: Femern Sund Bælt)

Af [Hans Schjær-Jacobsen](#) 2. jun 2020 kl. 13:04 [38]

10.06.20



Bent Flyvbjerg (傅以斌)
@BentFlyvbjerg

Planen var, at dele omkostningerne ligeligt mellem D og DK. Men D syntes projektet var for økonomisk risikabelt. Det skulle måske have været en advarselsslampe for DK

I stedet valgte DK at betale det hele, så tyskerne får en gratis tunnel, uden risiko. Godt gået af D! @ingdk

[Translate Tweet](#)



Jonathan Feddersen @JoFeddersen · Jun 3

Replying to @BentFlyvbjerg and @ingdk

Uanset det (sandsynlige) økonomiske fiasko for Femern AS, kan det trods alt være at tunnelen har positive (politiske, kulturelle, ...) eksternaliteter; overordnet set, at DK & Tyskland / Europa rykker tættere sammen. Hvis det er politikernes bagtanke, så burde det kommunikeres!

PhD Viva, Kirsten Hasberg

1:09 PM · Jun 3, 2020 · [Twitter Web App](#)

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Conclusions on Viking Link

- Although modelling by the Danish authorities show that the interconnector will benefit German coal power plants, the project is carried out
- Energopower is reinforced through the workings of the infopower of the cost-benefit analysis as prescribed by the Danish Ministry of Finance.
- This calculative devices contributes to power/ignorance, making it possible to disregard intersectoral ways of integrating fluctuating renewable energy as an alternative to interconnection
- The Supergrid thought collective suffers from a harmony of delusion (Fleck 1979)

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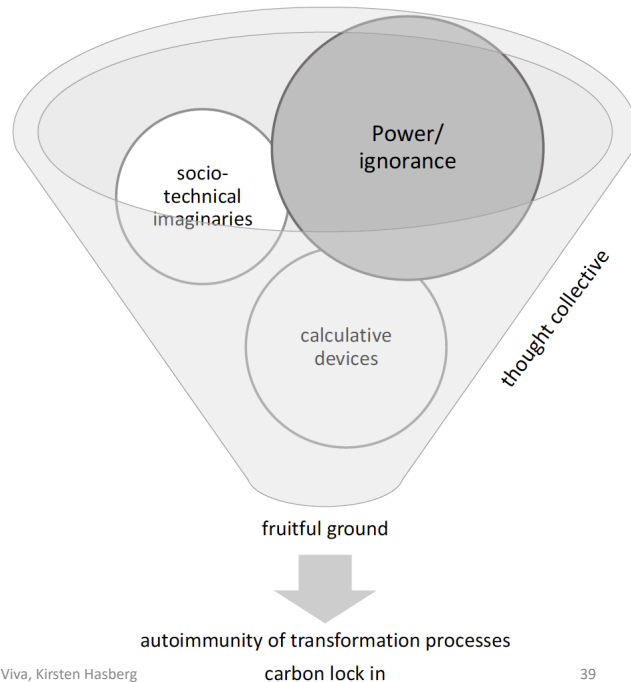
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The power/ignorance funnel

- Socio-technical imaginaries (particularly in case B) and calculative devices (particularly in case A) shape power/ignorance...
- ... resulting in autoimmunity: Transformation processes turning against themselves, resulting in carbon lock-in



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Theoretical contribution: Conjunctive theorization (Tsoukas 2017)

10.6094/behemoth.2017.10.1.943

BEHEMOTH A Journal on Civilisation
2017 Volume 10 Issue No. 1

Die Onto-Topologie der Energiewende
Volatile Ströme, endliche Energien und die
Sicherung des Bestandes

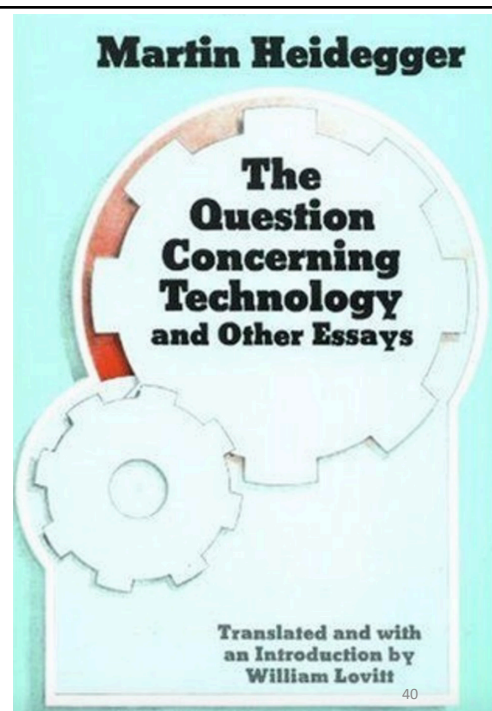
**Onto-Topologies of the Energy
Transition**

Volatile Currents, Finite Energies and the
Securing of the Standing Reserve

Andreas Folkers

10.06.20

PhD Viva, Kirsten Hasberg

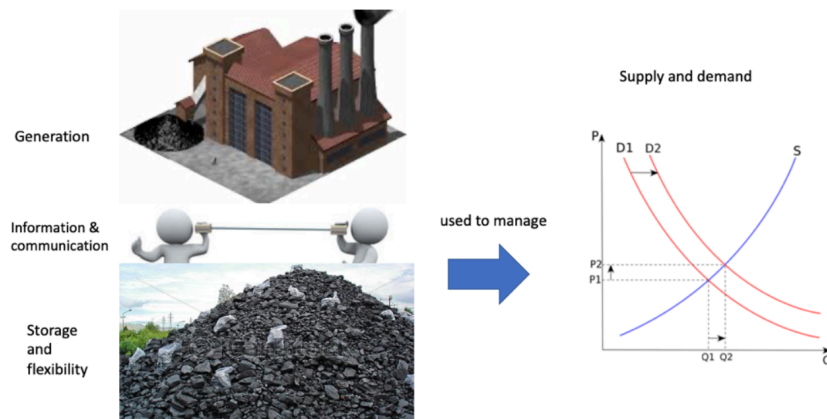


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What is meant by energy transition? From fossil energy as standing reserve...

Figure 5-1 Balancing supply & demand in the non-intermittent fossil energy system



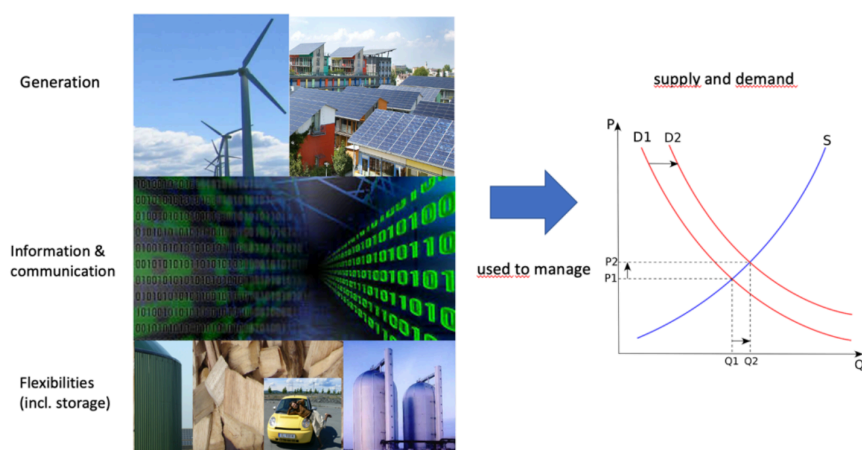
Source: Adaption of figure published in Hasberg (2019a). Image sources: Clipart (2020); csp MikhailT (2020); DLPNG (2020), and private.

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....to renewable energy systems as withdrawal

Figure 5-2 Balancing supply & demand in the intermittent Smart Energy System



Source: Adaption of figure published in Hasberg (2019a). Image sources: dbdh.dk (2013); Djsch (2020); Gerlach (2020); Lignum Group (2020), and private (2005).

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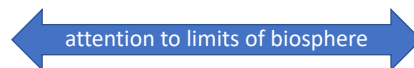
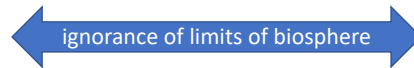
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Interlinkages between Heidegger's philosophy & new economics

**dominant energy system
(including footprint, i.e. imported
goods and food supply)**

Fossil based
(standing reserve)

renewable-based
(withdrawal)



**dominant economic
paradigm**

old economic
paradigm

new
economics

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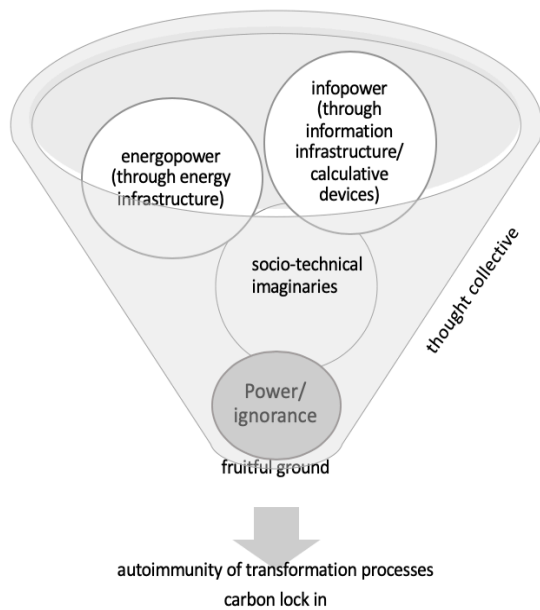
So what?
Disassembling the power/ignorance funnel

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Three channels of power/ignorance:

- the energopower of physical infrastructure
- the infopower of information infrastructure and calculative devices
- The socio-technical imaginaries reinforcing both forms of power

What to do about it? Be attentive to power/ignorance in decisionsmaking through

→ becoming aware of own thought collective ("comparative epistemology")

→ strengthening the outer circle of thought collectives, reducing risk of "harmonies of delusion", for more democratic decisionmaking

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Thank you!

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 Technical Faculty of IT & Design | Aalborg University Copenhagen
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Extra slides

Calculative devices of pandemic mitigation measures are scrutinized

Karl Friston: up to 80% not even susceptible to Covid-19

The influential professor's statistical observations could radically change how we lift lockdown



Freddie Sayers is the Executive Editor of UnHerd. He was previously Editor-in-Chief of YouGov, and founder of PoliticsHome.

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June 4, 2020

Targets of T Cell Responses to SARS-CoV-2 Coronavirus in Humans with COVID-19 Disease and Unexposed Individuals

Alba Grifoni • Daniela Weiskopf • Sydney I. Ramirez • ... Davey M. Smith • Shane Crotty • Alessandro Sette

Published: May 14, 2020 • DOI: <https://doi.org/10.1016/j.cell.2020.05.015>

Mette Frederiksen: »Vi vidste, at vi skulle minimere smittekæderne, og derfor valgte vi at lukke Danmark ned«

Oppositionen savner stadig svar på, hvilke myndigheder der anbefalede nedlukning af landet, og kræver interne dokumenter frem i lyset.

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Are we underestimating how many people are resistant to Covid-19?

Scientists are racing to work out why some populations have fared better than others during the pandemic

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Laura Spinney

PRO Viva, Kirsten Basildon 2020 10.00 BST

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The autoimmunity of pandemic mitigation measures

Will COVID-19 fiscal recovery packages accelerate or retard progress on climate change?

Cameron Hepburn, Brian O'Callaghan, Nicholas Stern, Joseph Stiglitz and Dimitri Zenghelis

Business

France announces billions in aid to aviation industry



Money includes direct government investment, subsidies, loans and loan guarantees

The Associated Press • Posted: Jun 09, 2020 5:52 AM ET | Last Updated: June 9

taz

POLITIK ÖKO GESELLSCHAFT KULTUR SPORT BERLIN NORD WAHRHEIT

Konjunkturpaket ohne Auto-Kaufprämie

Benzinrepublik Deutschland am Ende

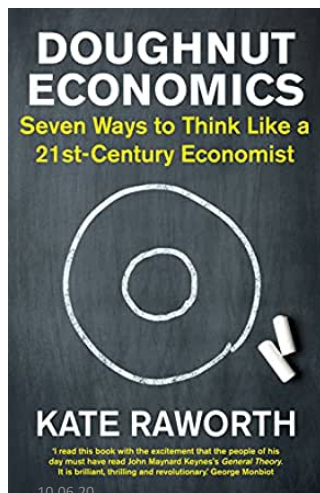
Das Konjunkturpaket ist eine Zeitenwende. Die Macht der Autoindustrie ist gebrochen. Ergebnis ist nicht ideal, aber besser als befürchtet.



Die für Autos mit Verbrennungsmotor lieft auf dem Schrott Foto: Davide Lolli/olainoicture

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How to study carbon lock-in: New Economics



Ecological Economics 169 (2020) 106515

Contents lists available at ScienceDirect

Ecological Economics

journal homepage: www.elsevier.com

Econ 101—In need of a sustainability transition

Inge Røpke

Aalborg University, Department of Planning, A.C. Meyers Vænge 15, 2450 Copenhagen SV, Denmark



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	New economics
Approach	deals with the “provisioning and appropriation [...] [of] the real cake” (Røpke 2020: 7).
Founding fields	(old) institutional and ecological economics and ecological economics.
Relationship to other fields	cuts across traditional natural, social and human sciences (Røpke 2020: 5).
Methods and relationship to real-world phenomena	Priority is given to the real-world phenomena
Goals	As “science of potentiality” (Schneidewind 2017), pointing out ways forward
Relationship to policy makers	Seeks to be an active player in society by making policy recommendations
What does new economics do?	It aims at establishing a new performativity of economics , “one that implies a strong call for just sustainability transitions and empowers environmental justice movements” (Røpke 2020: 11)

Source: Hasberg 2020, after Røpke, Fullbrook, Vatn, Faber; Bartosz, Hvelplund own considerations)

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"Rediscovering" governance on the blockchain



"Given the powerful roles of programmers with specialised skills, these projects remain open to scandals in which failures are attributed to a hierarchy of elite insiders. Such limits are most vividly apparent in the explosion of what became known as Initial Coin Offerings (ICOs), of which The DAO was arguably the first to raise funds in this novel manner." Campbell-Verduyn & Hütten

Article

Beyond scandal? Blockchain technologies and the fragile legitimacy of post-2008 finance

Malcolm Campbell-Verduyn
Rijksuniversiteit Groningen, Netherlands

Moritz Hütten
Darmstadt Business School, Germany
PhD Viva, Kirsten Hasberg

Finance and Society
2019, 5(2): 126-44
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10.2218/finso.v5i2.4137



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The DAO Hack

"It struck me that, like so many cryptocurrency and blockchain technologies, The DAO [Decentralized Autonomous Organization] might have been just a high- risk investment vehicle masquerading as a new way of doing things" Quinn DuPont, p. 173

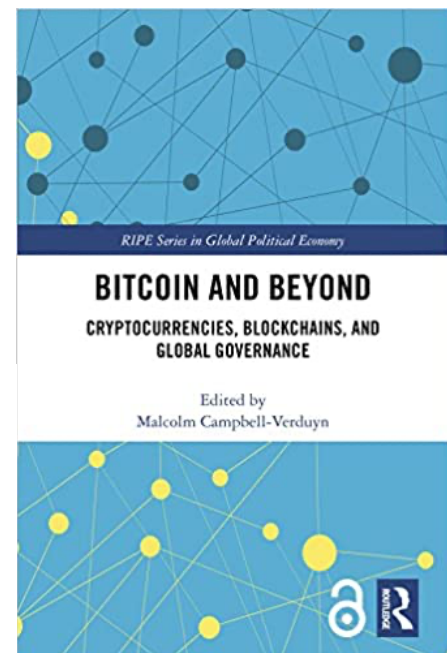
8 Experiments in algorithmic governance

A history and ethnography of "The DAO," a failed decentralized autonomous organization

Quinn DuPont

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At the peak of inflated expectations

Kodak Surges After Announcing Plans to Launch Cryptocurrency Called 'Kodakcoin'

By **Jeremy Herron**

January 9, 2018, 6:23 PM GMT+1

Updated on January 9, 2018, 10:28 PM GMT+1

CryptoKitties craze slows down transactions on Ethereum

5 December 2017

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KFC Introduces a Bucket That Can Only Be Paid for in Bitcoin

57

The trough of disillusionment

NEWS ANALYSIS

Mingis on Tech: As blockchain hype cools, a 'trough of disillusionment' for 2019?

A year ago, blockchain aficionados were all but declaring the distributed ledger technology would be bigger than the internet. Maybe so, but not yet. So where does blockchain go from here?

The Economist Topics Current edition More

Beyond the hype

Dividing the cryptocurrency sheep from the blockchain goats

| JAN 9, 2019 3

Cryptocurrencies look like a solution in search of a problem.
Blockchains could be more interesting

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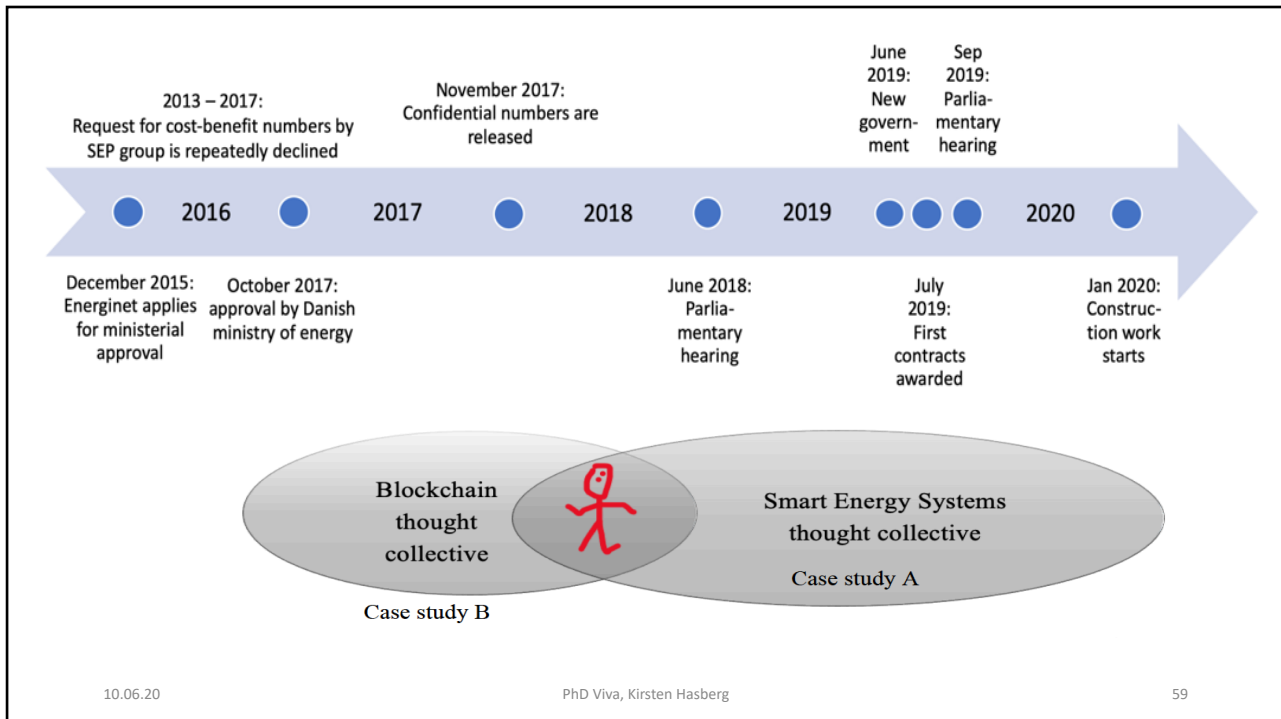
Greens meet geeks

Hope, hype and heresy as blockchains enter the energy business

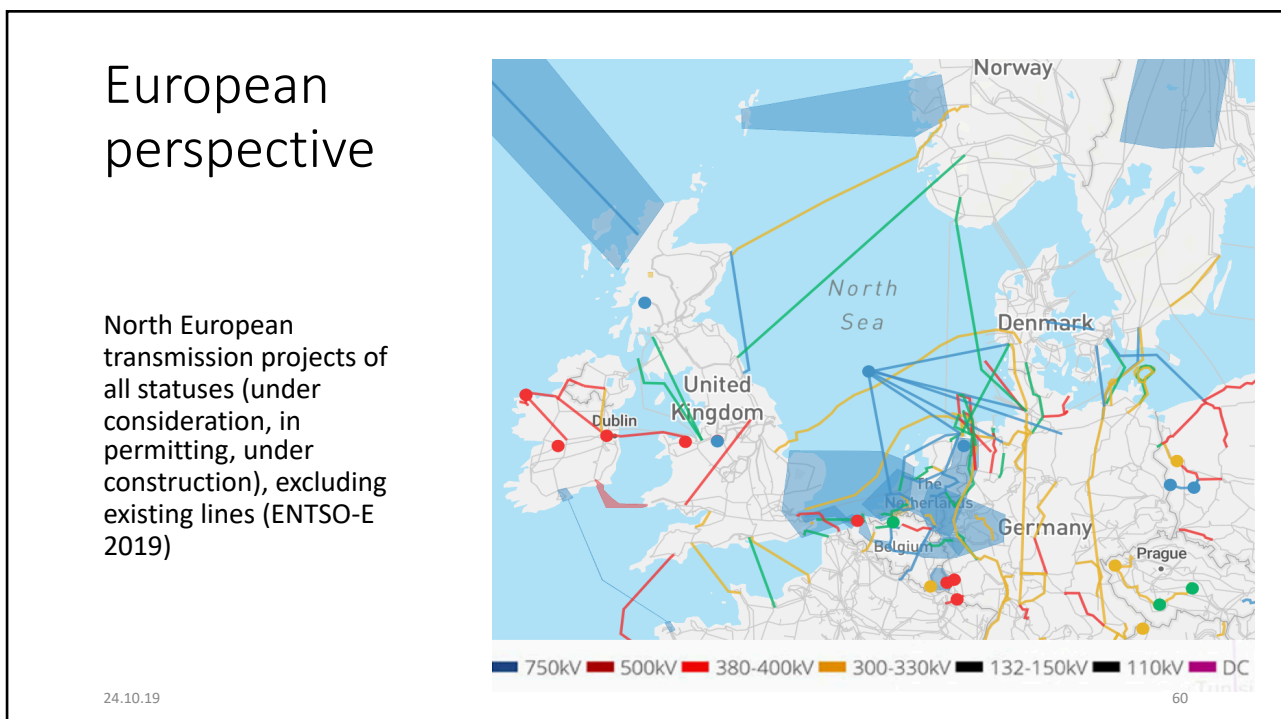
As yet, applications of the new technology have not lived up to expectations

58

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Ignorance as Fleck's "harmony of delusion"

- " (1) A contradiction to the system appears unthinkable.
 (2) What does not fit into the system remains unseen;
 (3) alternatively, if it is noticed either it is kept secret or
 (4) laborious efforts are made to explain an exception in terms that do not contradict the system.
 (5) one tends to see, describe, or even illustrate those circumstances, which corroborate current views [...]"

(Fleck 1979: 27)

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Conceptualizing ignorance

CULTURAL ANTHROPOLOGY

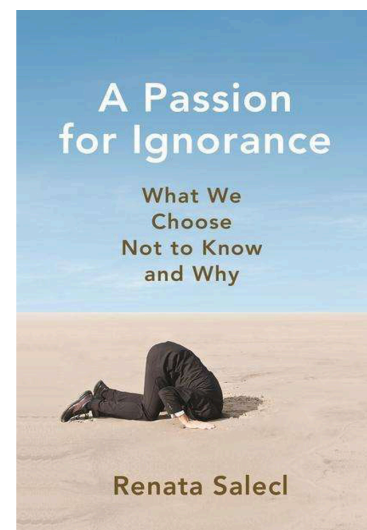
CIRCULATING IGNORANCE: Complexity and Agnogenesis in the Obesity "Epidemic"

EMILIA SANABRIA
 Ecole Normale Supérieure de Lyon
<http://orcid.org/0000-0002-5595-7905>

"strategic ignorance" (McGoey)

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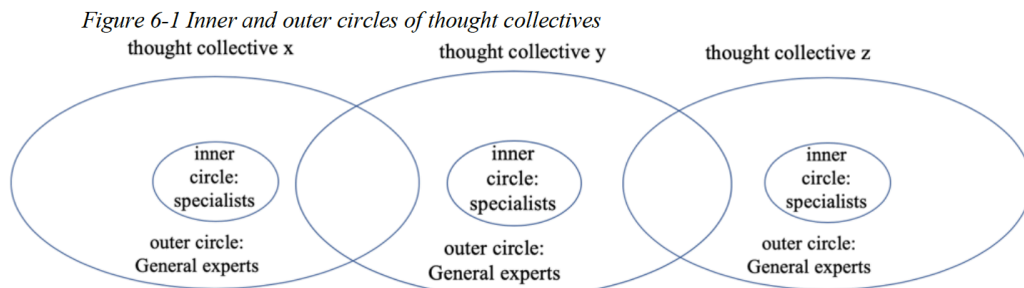


Ignorance as a psychoanalytically inspired concept linked to desire and pleasure

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Inner and outer circles of thought collectives



Source: Own illustration based on Fleck (1979), inspired by (Fagan 2009: 274, Figure 1).

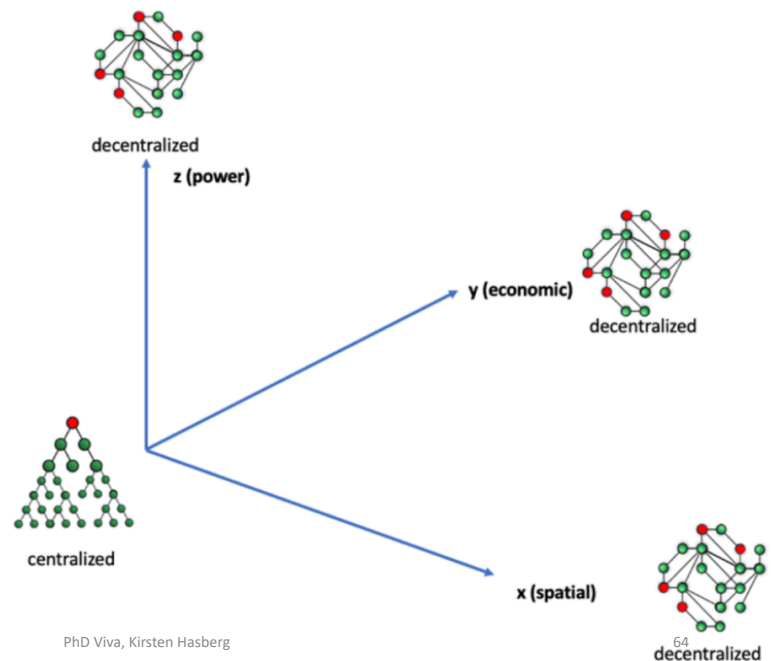
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Three dimensions of (de)centralization in energy and information systems



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64 decentralized

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What is flexibility?

- "[c1] a quality or property of the energy system as a whole;
- [c2] a commodity that can be bought and sold, and
- [c3] [...] specific measures, instruments, or techniques such as storage or demand-side management. (Blue et al. 2020: 3)

To these, I add a fourth type: [c4] interconnection."

Hasberg (2020: 86)

Article

Conceptualising flexibility: Challenging representations of time and society in the energy sector*

Stanley Blue , Elizabeth Shove and Peter Forman

Sociology Lancaster University, UK

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Time & Society
0(0) 1–22

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Who is "we"?

Case B: The "we" of the early blockchain-in-energy thought collective

Case A: The "we" of society at large

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